

The Effects of Online Review on Brand Attitude, Brand Image and Purchase Intention of Sports Products

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ABSTRACT

The purpose of this study is to examine the effects of online reviews on brand attitude, brand image, and purchase intention of sports products. To achieve this, an online survey was conducted among students from sports departments and sports club members. A total of 302 responses were used as the final data for this study. Reliability tests, simple linear regression, and hierarchical regression analysis were performed using IBM SPSS Statistics 29.0. The results are as follows: First, online reviews influenced the purchase intention of sports products; more positive or objective reviews led to a higher purchase intention. Second, positive, negative, and objective online reviews affected brand attitude, while subjective reviews did not. Third, online reviews impacted brand image, with more positive or objective reviews enhancing brand perception. Fourth, brand attitude partially mediated the effects of positive and negative reviews and fully mediated the effects of objective reviews, but fully mediated the effects of subjective reviews. These findings provide foundational data for the sports products market and suggest that companies should develop marketing strategies aligned with their objectives when utilizing online reviews.

KEYWORDS

Online review, sports products, brand attitude, brand image, purchase intention.

1. INTRODUCTION

The e-commerce market has been showing significant growth. According to recent data from KOSIS (2023), the transaction volume of online shopping has grown at an average annual rate of 18.7% over the past five years. With the development of the internet, smartphones and social network services, the online consumer market has expanded. This facilitates the convenient transmission and sharing of information among consumers. As a result, consumers are actively engaging in searching for, producing, and disseminating information. Online reviews created by consumers are becoming valuable sources of information for those dissatisfied with the one-sided information provided by companies, as they contain actual buyer experiences. Over 90% of consumers refer to user evaluations before making a purchase, spending more than 64% of their purchase time on online reviews. It demonstrates their significant influence (Jung & Yoo, 2023; Cho & Kim, 2014).). According to numerous previous studies, the effects of online reviews depend on the attributes of the messages. It has been observed that online reviews have a greater influence on the purchase of physical products than on the use of intangible services (Ahn, 2022).

With the increasing involvement of sports, the sports products industry has gained prominence in the sports industry market. It is expanding various fields and leading to notable growth (KSPO, 2023). The advent of the digital economy and the human-centric society has led to the emergence of the sports industry market as the 'Sports 4.0 market'. This has naturally transformed the consumer market to share consumption experiences and feedback through social media platforms. Sports consumers also utilize the internet as a space to exchange and generate information and opinions obtained from shopping. This shift in consumer behavior has prompted companies to recognize the need to utilize online platforms for managing brand assets to understand customer value and satisfy purchase desires (Shin, 2023; Seo & Kim, 2021; Kim, 2017; Yoon & Joung, 2019; Bing & Mo, 2020; Chunget al., 2016). As online platforms and data collection expand, the integration of machine learning techniques into marketing management can

help companies predict consumer preferences, optimize product recommendations, and enhance customer satisfaction (Kushwaha & Badhera, 2022; Moses et al., 2022; Hai & Duong, 2024; Cho, 2024).

There has considerable discussion in previous studies regarding sports product consumers, brand assets, and purchase intentions. However, there seems to be insufficient research on the effects of online reviews in the sports industry market. This study aims to examine the effects of online reviews on brand attitude, brand image and purchase intention of sports products. It is hoped that this research provides foundational data on effectiveness of online reviews in the sports industry market and offer new perspectives for marketing strategy development.

2. THEORETICAL BACKGROUND

2.1. Online Reviews

Online reviews are a form of word-of-mouth communication where consumers present their personal experiences or opinions in an online space. With this characteristic, this type of communication is conducted in writing, allowing information to be preserved and utilized without spatial or temporal constraints. Furthermore, it enables one-to-many communication with a diverse range of consumers directly or indirectly. It also characterized by the rapid and continuous dissemination of a large amount of informal information.

Previous research generally examines online reviews based on the attributes of the messages categorizing them into, positive and negative, objective, and subjective. Research has found that negative reviews have more impact than positive ones, and that online reviews have a more significant effect on the purchase of physical products than on the use of intangible services (Erkan & Evans, 2016). Recent research trends show the use of text mining techniques with big data to objectively classify online reviews. There is also growing trend to include credence goods alongside search and experience goods, aiming to verify products by type (Jin, 2021; Kim & Yang, 2023).

2.2. Sports Products

The sports products industry is a direct consumer market where individuals purchase the equipment needed for their sports activities. According to KSPO's Sports Industry Trend vol.164, the sports products sector includes distribution and rental of exercise and competition equipment. However, since the 21st century, these areas have begun to converge, and the sports service information industry and the sports products industry are now classified as a single sports-related distribution sector (KSPO, 2021).

With the increasing involvement of sports activity, the sports products industry has become a major segment within the consumer market and the broader sports industry. This sector has grown beyond just equipment to include various fields such as fitness, adventure sports, and functional sportswear. Additionally, the advancement of the information industry has enabled sports brands to utilize digital media to expand their sales channels and offer a wide range of services to consumers.

3. RESEARCH METHODOLOGY

3.1. Research Hypotheses and Model

Based on theoretical foundations and finding from previous studies, this research aims to elucidate the effects of online reviews on brand attitude brand image and purchase intention of sports products. Additionally, it aims to investigate the mediating effects of brand attitude and brand image of sports products. The specific research hypotheses and model are as follows [Figure 1].

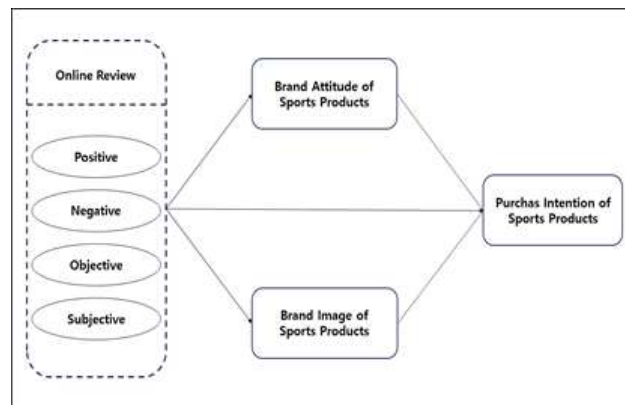
Firstly, it is hypothesized that positive, negative and objective, subjective of online reviews will effects on purchase intention of sports products.

Secondly, it is hypothesized that positive, negative and objective, subjective of online reviews will effects on brand attitude of sports products.

Thirdly, it is hypothesized that positive, negative and objective, subjective of online reviews will effects on brand image of sports products.

Fourthly, it is hypothesized that brand attitude of sports products will mediate between online reviews and purchase intention.

Fifthly, it is hypothesized that brand image of sports products will mediate between online reviews and purchase intention,



[Fig. 1] Research Model

3.2. Research Hypotheses and Model

The survey was conducted among 312 university students majoring in sports or members of golf and yoga clubs in the Gyeonggi and Chungcheong regions who had at least one online shopping experience related to sports products. The sampling was done using the convenience sampling method. The survey was conducted over five days from October 18 to 22, 2023, using an online Google Forms. The survey form consisted of a total of 71 including positive (4), negative (4), objective (5), subjective (5), brand attitude (4), brand image (4), purchase intention (4) and demographic characteristics (5). The survey method involved sending survey form URL individually via message. The participants read and answered the question themselves following the self-administration method. The research used a total of 312 survey forms for final data analysis, excluding the 10 due to incomplete responses.

3.3. Data Processing Methods

The research conducted as follows. This study utilized IBM SPSS Statistics 29.0 for data processing. First, to verify the construct validity of the 8 stimuli used in the survey, an internal consistency method was conducted using Cronbach's α test. Second, the survey form utilized that had been validated for validity and reliability through previous study. Additionally, each type of survey form was conducted Cronbach's α test for internal consistency. Third, a simple linear regression was analysis was performed to validate each hypothesis. Fourth, to verify the mediating effect, a hierarchical regression analysis was conducted in three steps using proposed by Baron & Kenny. Fifth, the Sobel test was conducted to test the significance of the mediating effect.

4. RESEARCH RESULTS

4.1. Research Hypotheses and Model

The survey instrument for this study is a questionnaire. The survey form is composed of a total of four types: A (positive), B (negative), C (objective), and D (subjective). Each type of survey was presented two stimuli. It conducted preliminary survey involving 32 students major of sports. The stimuli ensured internal consistency to conducted as shown by Cronbach's α test values ranging from .750 to .961. The survey questions were selected based on previous studies that ensured validity and reliability. It modified and supplemented to fit the research purpose after being reviewed by reviewed by five Professors in the field of sports management (Chin & Lee, 2014; Liu et al. 2023; Shin, 2020; Kim & Kang, 2023). To verify the convergent validity of the survey tool, Cronbach's α test was conducted. The reliability test results showed values ranging from .635 to .965 confirming the internal consistency.

4.2. Relationship between Online Reviews and Purchase Intention of sports products

This study conducted a simple linear regression analysis to determine the effects of the positive, negative, objective, and subjective of online reviews effect on purchase intention of sports products. Positive reviews were found to have a significant effect with $\beta=.508(p<.001)$, indicating that the more positive reviews lead to higher purchase intention for sports products. Negativity had a significant effect with $\beta=-.580(p<.001)$, indicating that the more negative reviews make lower purchase intention of sports products. Objective reviews showed a significant effect with $\beta=.685(p<.001)$, indicating that more objective reviews lead to higher purchase intention for sports products. Subjective reviews had a significant effect with $\beta=-.186(p<.001)$, suggesting that the more subjective reviews make lower purchase intention of sports products. The detailed analysis results are shown in [Table 1].

[Table 1] Analysis Results of Online Review and Purchase Intention of Sports Products

Variable	B	SE	β	t	F	R^2
Positive	.508	.076	.359	6.670***	44.485***	.129
Negative	-.580	.050	-.558	-11.651***	135.743***	.312
Objective	.685	.088	.412	7.823***	61.199***	.169
Subjective	-.186	.089	-.120	-2.086***	44.352**	.140

4.3. Relationship between Online Reviews and Brand Attitude of sports products

This study conducted a simple linear regression analysis to determine the effects of the positive, negative, objective, and subjective of online reviews effect on brand attitude of sports products. Positive reviews were found to have a significant effect with $\beta=.500(p<.001)$, indicating that more positive reviews lead to a higher brand attitude of sports products. Negativity had a significant effect with $\beta=-.530(p<.001)$, indicating that the more negative reviews make lower brand attitude of sports products. Objective reviews showed a significant effect with $\beta=.631(p<.001)$, indicating that more objective reviews lead to a higher brand attitude of sports products. Subjective reviews showed $\beta=-.125(p>.05)$, indicating that subjective reviews do not effect on brand attitude of sports products. The detailed analysis results are shown in [Table 2].

[Table 2] Analysis Results of Online Review and Brand Attitude of Sports Products

Variable	B	SE	β	T	F	R^2
Positive	.500	.052	.487	9.657***	93.260***	.237
Negative	-.530	.048	-.540	-11.119***	123.639***	.292
Objective	.631	.068	.475	9.342***	87.266***	.225
Subjective	-.125	.082	-.087	-1.519	42.308***	.280

4.4. Relationship between Online Reviews and Brand Image of sports products

This study conducted a simple linear regression analysis to determine the effects of the positive, negative, objective, and subjective of online reviews effect on brand image of sports products. Positive was found to have a significant effect with $\beta=.466(p<.001)$, indicating that the more positive reviews make more higher brand image of sports products. Negativity had a significant effect with $\beta=-.464(p<.001)$, indicating that the more negative reviews make lower brand image of sports products. Objective reviews showed a significant effect with $\beta=.665(p<.001)$, indicating that the more objective reviews make higher brand attitude of sports products. Subjective reviews had a significant effect with $\beta=-.249(p<.01)$, suggesting that the more subjective reviews make lower brand image of sports products. The detailed analysis results are shown in [Table 3].

[Table 3] Analysis Results of Online Review and Brand Image of Sports Products

Variable	B	SE	β	T	F	R^2
Positive	.466	.067	.372	6.937***	48.128***	.138
Negative	-.464	.051	-.462	-9.023***	81.406***	.213
Objective	.665	.077	.446	8.624***	74.368***	.199
Subjective	-.249	.087	-.163	-2.859**	81.715**	.163

4.5. Verification of Mediating Effect on Brand Attitude of Sports Products

This study conducted hierarchical regression analysis in three steps to determine the mediating effect of brand attitude between online reviews and purchase intention of sports products. The Sobel test was also conducted to verify the significance of mediating effect. The regression model for positive, negative, objective and subjective confirming that there were no multicollinearity issues with TOL values above 0.1 and VIF Values below 10. For positive, the $\beta=.359$ in second stage but decrease $\beta=.106$ in the third stage indicating a partial mediating effect. The Sobel test value of $Z=5.133(p<.001)$ was statistically significant. For negative, the $\beta=-.558$ in second stage but decrease $\beta=-.145$ in the third stage indicating a partial mediating effect. The Sobel test value of $Z=-2.543(p<.001)$ was statistically significant. In the case of objective, the $\beta=.412(p>.05)$ in second stage but the $\beta=.047(p<.001)$ in the third stage indicating a complete mediating effect. The Sobel test $Z=7.215(p<.001)$ was statistically significant. Subjective was rejected as it did not meet the conditions for verifying the mediating effect. The detailed analysis results are shown in [Table 4].

[Table 4] Analysis Result of Mediation Effect on Sports Products Brand Attitude

Variable	B	SE	β	t	TOL	VIF	R^2	F
1 Positive-	.500	.052	.487	9.657***			.237	93.260***

	Brand Attitude								
2	Positive-Purchase Intention	.508	.076	.359	6.670***	1.000	1.000	.129	44.485***
3	Positive-Purchase Intention	.150	.076	.106	1.970***	.763	1.311	.355	75.305***
	Brand Attitude-Purchase Intention	.715	.074	.519	9.620***				
1	Negative-Brand Attitude	-.530	.048	-.540	- 11.119***			.292	123.639***
2	Negative-Purchase Intention	-.580	.050	-.558	- 11.651***	1.000	1.000	.312	135.743***
3	Negative-Purchase Intention	-.151	.037	-.145	-4.031***	.708	1.412	.725	394.660***
	Brand Attitude-Purchase Intention	.809	.308	.764	21.220***				
1	Objective-Brand Attitude	.631	.068	.475	9.342***			.225	87.266***
2	Objective-Purchase Intention	.685	.088	.412	7.823***	1.000	1.000	.169	61.199***
3	Objective-Purchase Intention	.078	.067	.047	1.164	.775	1.291	.627	251.545***
	Brand Attitude-Purchase Intention	.962	.050	.769	19.162***				

4.6. Verification of Mediating Effect on Brand Image of Sports Products

This study conducted hierarchical regression analysis in three steps to determine the mediating effect of brand image between online reviews and purchase intention of sports products. The Sobel test was also conducted to verify the significance of mediating effect. The regression model for positive, negative, objective and subjective confirming that there were no multicollinearity issues with TOL values above 0.1 and VIF Values below 10. For positive, the $\beta=.359$ in second stage but decrease $\beta=.146$ in the third stage indicating a partial mediating effect. The Sobel test value of $Z=6.015(p<.001)$ was statistically significant. For negative, the $\beta=-.558$ in second stage but decrease $\beta=-.255$ in the third stage indicating a partial mediating effect. The Sobel test value of $Z=-8.019(p<.001)$ was statistically significant. For Objective, the $\beta=.412$ in second stage but decrease $\beta=.104$ in the third stage indicating a partial mediating effect. The Sobel test value of $Z=7.604(p<.001)$ was statistically significant. In the case of subjective, the $\beta=-.120(p>.05)$ in second stage but the $\beta=.016(p<.001)$ in the third stage indicating a complete mediating effect. The Sobel test $Z=-2.844(p<.001)$ was statistically significant. The detailed analysis results are shown in [Table 5].

[Table 5] Analysis Result of Mediation Effect on Sports Products Brand Image

	Variable	B	SE	β	t	TOL	VIF	R ²	F
1	Positive-Brand Image	.466	.067	.372	6.937***			.138	48.128***
2	Positive-Purchase Intention	.508	.076	.359	6.670***	1.000	1.000	.129	44.485***
3	Positive-Purchase Intention	.207	.068	.146	3.065**	.862	1.160	.412	104.593***
	Brand Image-Purchase Intention	.647	.054	.573	11.982***				
1	Negative-Brand Image	-.464	.051	-.462	-9.023***			.213	81.406***
2	Negative-Purchase Intention	-.580	.050	-.558	-11.651***	1.000	1.000	.312	135.743***
3	Negative-Purchase Intention	-.265	.040	-.255	-6.613***	.787	1.271	.650	277.353***
	Brand Image-Purchase Intention	.679	.040	.656	16.993***				
1	Objective-Brand Image	.665	.077	.446	8.624***			.199	74.368***
2	Objective-Purchase Intention	.685	.088	.412	7.823***	1.000	1.000	.169	61.199***
3	Objective-Purchase Intention	.173	.072	.104	2.406**	.801	1.248	.551	181.276***
	Brand Image-Purchase Intention	.770	.048	.690	15.931***				
1	Subjective-Brand Image	-.249	.087	-.163	-2.859**			.163	81.715***
2	Subjective-Purchase Intention	-.186	.089	-.120	-2.086***	1.000	1.000	.140	44.352***
3	Subjective-Purchase Intention	.026	.051	.016	.506	.973	1.027	.693	337.810***
	Brand Image-Purchase Intention	.848	.033	.835	25.723***				

5. RESULTS AND DISCUSSION

The specific results are as follows: Firstly, both positive and negative, as well as objective and subjective online reviews, affected purchase intention of sports products. More positive and objective reviews lead to higher purchase intention, whereas more negative and subjective reviews lead to lower purchase intention. These results support previous research indicating that the positive or negative expression of online reviews affects purchase intention. Furthermore, increased negative and objective reviews also led to differences in purchase intention. Therefore, to increase purchase intention, it appears necessary to manage the quality of online reviews according to their attributes. Secondly, except for subjective reviews, positive, negative, and objective reviews affected the brand attitude of sports products. More positive and objective reviews improved the overall perception of the brand attitude, while negative reviews led to decrease. These results partially support previous research findings that online communication is an effective means of shaping brand attitude and purchase behavior. Therefore, if a company aims to form a favorable brand attitude, it should utilize positive and objective reviews. Additionally, to avoid forming negative attitudes, it is necessary to manage negative reviews. Thirdly, positive, negative, objective and subjective online reviews affected the brand image of sports products. Higher levels of positive and objective reviews were associated with an increased perception of brand image, while higher of negative and subjective reviews led to a decrease in brand image perception. These results partially support previous research indicating that consumers in the sports products market are influenced by the characteristics of SNS information when forming brand images. However, it is important not to overlook that consumer relationships can vary based on mental and cognitive trust in others. Therefore, when considering brand image formation using online reviews, the potential effect of individual environmental variables should be considered. Fourthly, the brand attitude of sports products showed a partial mediating effect on positive and negative reviews and a full mediating effect on objective reviews. These results partially support previous research findings that increased positive and objective reviews lead to a more favorable brand attitude, which in turn influences purchase intention. However, the finding that subjective reviews do not affect brand attitudes contrasts with previous research. Therefore, further research is needed on consumers' perceived authenticity and the usefulness of information source. Fifthly, for the brand image of sports products, partial mediating effects were observed for positive, negative and objective reviews, while subjective reviews exhibited a complete mediating effect. These results support previous research findings that quality information based on consumer reviews is related to store image and purchase intention. Therefore, to enhance sports brand image and purchase intention, companies need to manage the quality of online reviews as an information source.

6. CONCLUSION

This study examined the effect of online reviews on brand attitude, brand image and purchase intention of sports products. To accomplish the research objectives, a survey was conducted using pre-validated stimuli. Data analysis involved employing both simple linear regression and hierarchical regression analysis following Baron and Kenny (1986). The results of individual hypothesis revealed that the effect of online reviews on brand attitude, brand image and purchase intention of sports products varied depending on message attributes. Furthermore, it was observed that the relationships between brand attitude, brand image and online reviews with the purchase of sports products exhibited varying degrees of partial and complete mediating effects depending on message attributes.

This research provides new foundational data aligned with changes in the sports consumer market. When sports brands formulate marketing strategies related to brand assets or purchase intentions of sports products, online reviews prove to be effective. However, sports brands need to establish explicit strategies on how to utilize online reviews and what their purpose is to effectively leverage them. This study encountered difficulties in establishing a common acceptance of standard online reviews among research participants. If subsequent research is conducted, it seems necessary to measure acceptance through preliminary surveys. Finally, exploring the effects of online reviews in the sports industry market, where production and consumption occur simultaneously, could yield interesting results.

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Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to be responsible for all the aspects of this work.

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Authors declare that they have no conflict of interest.

Availability of data and materials

Not Applicable

Use of Artificial Intelligence

Not applicable

Declarations

Authors declare that all works are original and this manuscript has not been published in any other journal.

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